

AMENDMENTS TO THE DRAWINGS

Applicant submits herewith replacement drawing sheets for FIGS. 9, 10, 13, 14, 16, 23, and 24. No new matter has been added by way of this amendment.

Applicants' specification refers to "connector 107" in the description of both FIG. 9 and FIG. 10. However, reference number "107" was inadvertently omitted from FIGS. 9 and 10. The attached sheets include new versions of FIGS. 9 and 10 incorporating the omitted reference number "107." In addition, Applicants' specification refers to "button moldings 100, 102" in the description of FIG. 10. However, reference numbers "100" and "102" were inadvertently omitted from FIG. 10. The new version of FIG. 10 included in the attached sheets also incorporates the omitted reference numbers "100" and "102."

Applicants' specification refers to "connector 113" in the description of both FIG. 13 and FIG. 14. However, reference number "113" was inadvertently omitted from FIGS. 13 and 14. The attached sheets include new versions of FIGS. 13 and 14 incorporating the omitted reference number "113." In addition, Applicants' specification refers to "display circuit board 104" and "antenna circuit board 106" in the description of FIG. 14. However, the display circuit board illustrated by FIG. 14 was inadvertently improperly identified with reference number "106" and the antenna circuit board illustrated by FIG. 14 was inadvertently improperly identified with reference number "104." The new version of FIG. 14 included in the attached sheets replaces the incorrect reference number "104" with the correct reference number "106" for the antenna circuit board, and replaces the incorrect reference number "106" with the correct reference number "104" for the display circuit board.

Applicants' specification refers to "antenna circuit board 106" in the description of FIG. 16. However, the antenna circuit board illustrated by FIG. 16 was inadvertently improperly identified with reference number "104." The attached sheets include a new version of FIG. 16 that replaces the incorrect reference number "104" with the correct reference number "106" for the antenna circuit board. In addition, Applicants' amended specification refers to "antenna circuit board 106" in the description of FIGS. 23 and 24. However, the antenna circuit board illustrated by FIGS. 23 and 24 was inadvertently improperly identified with reference number "104." The attached sheets include new versions of FIGS. 23 and 24 that replace the incorrect reference number "104" with the correct reference number "106" for the antenna circuit board.

The attached sheets include a new version of FIG. 9 incorporating the omitted reference number "107," a new version of FIG. 10 incorporating the omitted reference numbers "100", "102", and "107," a new version of FIG. 13 incorporating the omitted reference number "113," a new version of FIG. 14 incorporating the omitted reference number "113" and correcting the reference numbers for display circuit board "104" and antenna circuit board "106," and new versions of FIGS. 16, 23, and 24 correcting the reference number for antenna circuit board "106."

Attachment: Replacement Sheets (7)

REMARKS

This Amendment is responsive to the Final Office Action dated September 1, 2006. Applicant has cancelled claims 11-20 and 22 and added claims 23-32. In addition, Applicant has amended the specification and FIGS. 9, 10, 13, 14, 16, 23, and 24 to correct inadvertent typographical errors. Claims 1-10, 21, and 23-32 are pending.

Allowable Subject Matter

In the Final Office Action, the Examiner indicated that claims 5-8 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejection Under 35 U.S.C. § 103

In the Final Office Action, claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (US 6,418,346) in view of Teshome (US 6,219,255) and Stanton et al. (US 6,249,703). The Office Action also rejected claim 9 under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. in view of Teshome and Stanton et al. as applied to claim 1 above, and further in view of Conley et al. (US 6,418,340).

Applicant respectfully traverses the rejections under 35 U.S.C. 103(a). The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

With reference to independent claim 1, for example, the applied references lack any teaching that would have suggested an internal antenna mounted on a first circuit board and a display device mounted on a second circuit board, wherein the first circuit board includes a substantially contiguous ground plane layer interrupted by a plurality of gaps.

In support of the rejection, the Office Action relied on Nelson. According to the Office Action, Nelson "discloses a programmer . . . with a telemetry antenna on an antenna driver circuit board . . . and a display screen on a graphics circuit." (Office Action dated September 1, 2006 at page 4, item 9.) The Office Action recognized that Nelson fails to disclose a substantially contiguous ground plane layer interrupted by a plurality of gaps and an internal antenna. The

Office Action asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Nelson with the teachings of Stanton et al. and Teshome et al. to include an internal antenna mounted on a first circuit board and a ground plane layer that is substantially contiguous and interrupted by a plurality of gaps. Applicant disagrees with this conclusion. The references fail to teach or suggest a ground plane layer that is *substantially contiguous* and interrupted by a plurality of gaps. In addition, the references fail to teach or suggest a display device mounted on a second circuit board, separate from a first circuit board on which an internal antenna is mounted. Moreover, the Office Action identified no teaching in the prior art of a motivation to modify Nelson to conform to the requirements of Applicant's claims.

Nelson in view of Teshome and Stanton fails to teach or suggest a programmer for an implantable medical device including a *substantially contiguous* ground plane layer that is interrupted by a plurality of gaps. In order to overcome the deficient teachings of Nelson, the Office Action looked to Teshome and asserted that Teshome teaches a conductive layer, which can serve as a ground plane layer, that "is separated into interconnected (column 3, line 67 – column 4, line 4) segments (column 3, lines 64-67) by outwardly extending gaps." (Office Action dated September 1, 2006 at page 5, item 9.) Figure 3 of Teshome shows a non-contiguous conductive layer that is fully separated into distinct segments (40, 42) by gaps (48, 54) that pass through the full width of the conductive layer. In addition, Figures 3 also shows an interconnect (52) crossing over the conductive segments (40, 42).

While the interconnect in Teshome does in fact electrically connect two components, the interconnect described by Teshome does not connect the conductive segments to one another to ensure that the entire layer is grounded, as suggested by the Examiner. Rather, the interconnect in Teshome electrically connects a driver (60) and receiver (62) in order to provide a path for a signal current I_s to flow from the driver to the receiver. (Figure 3; Col. 6, ll. 57-60.)

Teshome also teaches that the interconnect provides capacitive and inductive (electromagnetic) coupling between the first and second conductive segments by crossing over the gap between the first and second segments, which are not a contiguous conductive layer. (Col. 5, ll. 49-57.) The Teshome reference is concerned with increasing the surface area available for coupling the first and second segments in order to enhance capacitive and inductive

coupling of the segments. (See, e.g., col. 6, ll. 52-56 and col. 7, ll. 6-17.) As Applicant has pointed out in previous Responses, the goals of the techniques disclosed by Teshome (i.e., capacitive and inductive coupling between conductive segments in a logic board) would be impossible to achieve if the conductive layers were substantially contiguous because such coupling requires at least two conductive segments completely separated by a dielectric layer. If the conductive segments were substantially contiguous, as required by Applicant's claim 1, the segments could not be inductively coupled because the segments would be electrically coupled, i.e., shorted together. Therefore, Teshome does not teach a substantially contiguous ground plane layer. On the contrary, the first and second conductive segments described by Teshome are clearly distinct and physically separate. In summary, Teshome describes electromagnetic coupling of physically distinct, non-contiguous segments. Electromagnetic coupling is necessary for the fundamental reason that the segments are not contiguous.

The Office Action also asserted that column 8, lines 66-67 of Teshome teaches that "interconnect layer 52 may be included on any layer of a multilayer printed circuit board 46." (Office Action dated September 1, 2006 at page 5, item 9.) Applicant respectfully disagrees. First, throughout the Teshome disclosure, it is repeatedly emphasized that the first and second segments are on a first layer and the interconnect is on a second layer, which is separated from the first layer. (See, e.g., Teshome independent claims 1, 18, and 35 and col. 3, ll. 59 - col. 4, ll. 4.) Secondly, the Office Action's reliance on the statement in Teshome that, "the interconnect layer 52 may be included on any layer of a multilayer printed circuit board 46" as teaching an interconnect and conductive segments within the same layer is taken out of context. Within the very same paragraph that Teshome provides the aforementioned statement, Teshome teaches the advantages of its interlocking conductive segments:

The interlocking arrangement of mating features may include any number of various geometries, so long as the overall effect of the geometries increases the localized coupling of the first and second segments in the cross-over region . . . the cross-over region 50 is that region here the interconnect 52 crosses over (or under) the gap between the first segment 40 and the second segment 42, the interconnect further being separated from the plane of the first and second segments by an insulative layer 45 (FIG. 3A). The interconnect 52 may be included on any layer of a multilayer printed circuit board 46. (Col. 8, ll. 54-67 (emphasis added).)

Based on the above teaching in Teshome, it is clear that the interconnect may be included on any layer of a multilayer printed circuit board, so long as the interconnect crosses over or under the conductive segments and is electrically insulated therefrom. Accordingly, Teshome does not teach an embodiment in which the interconnect is attached to the two conductive segments “making them a single board,” as asserted by the Office Action. (Office Action dated September 1, 2006 at page 3, item 3.)

Even if Teshome did teach that the interconnect may be disposed within the same layer as the conductive segments, which Applicant disputes, such an arrangement would not be feasible unless the interconnect was separated from the first and second segments by a dielectric material, which would result in a non-contiguous conductive segment. As shown in FIG. 3 of Teshome, the interconnect (52) provides a pathway for a signal current (I_s) between a driver (60) and receiver (62), and the first and second segments (40, 42) provide a return path for the return current (I_R). If the interconnect electrically connected the first and second segments to create a substantially contiguous conductive segment, the return path for the current I_R between the receiver 62 and driver 60 would be eliminated.

Thus, Teshome does nothing to cure the deficient teachings of Nelson because it provides no teaching or suggestion of mounting an internal antenna on a circuit board that includes a substantially contiguous ground plane layer interrupted by a plurality of gaps, much less within a programmer for an implantable medical device. Accordingly, it would not have been obvious to a person having ordinary skill in the art to combine the segmented ground plane of Teshome with the antenna driver circuit board of Nelson. Upon realization of the shortcomings of Teshome, it is clear that the prior art of record cannot support a prima facie case of unpatentability.

Nelson in view of Teshome and Stanton also fails to teach or suggest a programmer that includes an internal antenna mounted on a first circuit board and a display device mounted on a second circuit board as recited in independent claim 1 and as required by dependent claims 2-4 and 9. In support of the rejection, the Office Action relied on Nelson, and asserted that Nelson disclosed a display screen mounted on a graphics circuit because Nelson “states that the display screen is coupled to the display circuit, which is commonly understood to mean that it is electrically connected and mounted to the display circuit.” (Office Action dated September 1, 2006 at page 3, item 4.) Applicant respectfully disagrees with this interpretation of “mounted.”

Regardless of the meaning of “mounted,” it is clear that the prior art does not contemplate a second circuit board on which a display device is mounted. In support of the rejection, the Office Action asserted that either the graphics circuit disclosed by Nelson was itself a second circuit board, which is factually incorrect, or it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the graphics circuit a second circuit board. Nelson contains no teaching or suggestion of a second circuit board whatsoever.

The Examiner relied on an improper finding of an inherent disclosure in Nelson. The fact that a certain characteristic may be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); MPEP 2112. The Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original); MPEP 2112.

Even if the display screen in Nelson is electrically connected and mounted to the display circuit, as the Office Action asserts (see Office Action dated September 1, 2006 at page 3, item 4), it does not necessarily follow that the display circuit and/or display screen are mounted on a circuit board that is separate from the circuit board on which the antenna is mounted. No reasonable support has been provided for the determination that the programmer in Nelson necessarily includes two circuit boards, as recited by claim 1, much less an antenna mounted on a first circuit board and a display mounted on a second circuit board.

The Office Action identified no teaching in the prior art of a motivation to modify Nelson to incorporate a second circuit board. The Office Action cited a case that held that constructing a formerly integral structure in various elements involves only routine skill in the art. However, even if incorporating a second circuit involves only routine skill in the art, the Office Action still failed to identify any teaching or suggestion that would have motivated a person skilled in the electrical arts to modify Nelson to include a display device mounted on a second circuit board.

The Court of Appeals for the Federal Circuit has made clear that motivation to combine references must be found in the prior art, and that it is impermissible hindsight for the Examiner to use the motivation stated in Applicant's own disclosure as a blueprint to reconstruct the

claimed invention from the prior art.¹ It is insufficient to merely pull such motivation out of thin air. Rather, the Examiner's rejection must be based on substantial evidence in the record demonstrated that the motivation for making the claimed invention resides in the prior art.²

Applicants recognized advantages to mounting an antenna on a first circuit board and a display device on a second circuit board. For example, separate circuit boards may allow control circuitry to selectively disable display electronics connected to a second circuit board during telemetry sessions administered by components on a first circuit board, thereby possibly reducing interference caused by noise associated with the display. (See Applicant's disclosure at paragraph 107 at page 21).

In summary, the conclusion of obviousness for Applicant's claims 1-4 and 9, and particularly the cited motivation to modify Nelson in view of Teshome and Stanton, is unsupported by any substantial evidence in the record. Conley provides no teaching sufficient to overcome the basic deficiencies in the Nelson, Teshome, and Stanton references relative to the claimed invention.

Claims 2-4, and 9 depend from claim 1. As described above, Nelson, Teshome, and Stanton fail to disclose or suggest each and every limitation of Applicant's independent claim 1. In view of the fundamental shortcomings identified above, Applicant reserves comment concerning the additional limitations expressed in the dependent claims and does not acquiesce in the Examiner's application of the teachings of Nelson, Teshome, Stanton, and Conley to those claims.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 1-4 and 9 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

¹ See *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (CAFC 1985); see also *In re Fine*, 5 USPQ2d 1596, 1598 (CAFC 1988); see also *In re Gorman*, 18 USPQ 2d 1885, 1888 (CAFC 1991); see also *Al-Site Corp. v. VSI International, Inc.*, 50 USPQ2d 1161, 1171 (CAFC 1999).

² *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002); *In re Chu*, 36 USPQ2d at 1094.

Rejection for Obviousness-type Double Patenting:

The Examiner provisionally rejected claims 1-4 and 10 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/693,015 in view of Teshome. The Examiner also provisionally rejected claims 1, 9, and 10 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 6, 8, 9, 22, 26, 34, and 36 of copending Application No. 10/693,835.

Applicant respectfully traverses this rejection, particularly in light of the deficiencies identified in Teshome above. In addition, Applicant notes that with respect to the provisional rejection of claims 1, 9 and 10 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 6, 8, 9, 22, 26, 34, and 36 of copending Application No. 10/693,835, neither claims 1, 6, 8, 9, 22, 26, 34 nor 36 in copending Application No. 10/693,835 recite a substantially contiguous ground plane layer interrupted by a plurality of gaps. Thus, it is unclear why it would have been obvious to modify claims 1, 6, 8, 9, 22, 26, 34, and 36 of copending Application No. 10/693,835 to include a substantially contiguous ground plane layer interrupted by a plurality of gaps. Applicant respectfully submit that the Examiner has not established a prima facie case of obviousness-type double patenting. To support an obviousness-type double patenting rejection, the Examiner must assess the differences between the claims in the pending application and the claims in the issued patent.³ In particular, the Examiner should indicate why the claims in an application are obvious over the claims in the granted patent.⁴

Applicant notes, however, the provisional status of this rejection. Accordingly, Applicant will further address this issue if and when the rejection is formally applied.

New Claims

Applicant has added claims 23-32 to the pending application. The applied references fail to disclose or suggest the inventions defined by Applicant's new claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed inventions. As one example, the reference fail to disclose or suggest a substantially contiguous ground plane

³ *In re Berg*, 46 USPQ2d 1226, 1229 (Fed Cir. 1998).

⁴ *Id.*

layer interrupted by a plurality of gaps, as recited by independent claim 23. No new matter has been added by the new claims.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

By:

December 1, 2006
SHUMAKER & SIEFFERT, P.A.
8425 Seasons Parkway, Suite 105
St. Paul, Minnesota 55125
Telephone: 651.735.1100
Facsimile: 651.735.1102

Jessica H. Kwak
Name: Jessica H. Kwak
Reg. No.: 58,975